

REMARKS

Applicants respectfully request reconsideration of the present application in view of the foregoing amendments and in view of the reasons that follow.

Claims 1-29 are currently being amended to put these claims in better form for U.S. practice. No new matter is being added.

This amendment changes claims in this application. A detailed listing of all claims that are, or were, in the application, irrespective of whether the claim(s) remain under examination in the application, is presented, with an appropriate defined status identifier.

After amending the claims as set forth above, claims 1-29 are now pending in this application.

Abstract

The abstract was objected to. The abstract has been amended as suggested in the Office Action, and applicants submit that the objection thereto has been overcome.

Claim objections

Claims 1-29 were objected to for informalities. The claims have been amended to correct the informalities noted in the Office Action, and applicants submit that the objections have been overcome.

Rejection under 35 U.S.C. § 112, second paragraph

Claims 1-19 stand rejected under 35 U.S.C. § 112, second paragraph as being indefinite. The claims have been amended to address the issues raised in the Office Action, and applicants submit that the rejection of the claims has been overcome.

Rejection under 35 U.S.C. § 103

Claims 1-29 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 5,354,151 to Giannesini (“Giannesini”) in view of U.S. Patent No. 4,844,213 to Travis (“Travis”). Applicants respectfully traverse this rejection for at least the following reasons.

Independent claim 1 recites “a riser protection configured to protect the riser from impacts when the riser is in an extended, load transferring mode.” Giannesini and Travis fail to suggest at least this feature of claim 1 in the context of that claim.

Giannesini discloses a system for loading at sea including a submersible buoy 1, an underwater reservoir 3, and a flexible line 5, which may be a loading line, linking the reservoir to the buoy. FIG. 3A shows underwater reservoir 3 located in an excavation 31 in the ocean floor 32 so the reservoir is protected from impacts by icebergs 30 (col. 5, lines 52-56). FIG. 3B shows an underwater reservoir 3 located on the ocean floor 32 and surrounded by artificial embankment 33 which stops icebergs whose draft is too great (col. 5, lines 57-60).

Giannesini fails to disclose “a riser protection configured to protect the riser from impacts when the riser is in an extended, load transferring mode.” The Giannesini structure is not designed to protect any riser when the riser is in an extended, load transferring mode. The embodiments of FIGs. 3A and 3B in Giannesini would not act to protect any riser of Giannesini from ice when the riser is in an extended, load transferring mode, but merely protect the reservoir 3 on the ocean floor. The Office Action appears to recognize that Giannesini fails to disclose “a riser protection configured to protect the riser from impacts when the riser is in an extended, load transferring mode” as in claim 1, stating on page 5 “Giannesini ‘151 fails to teach protective means for protecting the riser from impacts when the riser is in an extended, load transferring mode.” The Office Action supplies Travis for disclosing this feature. Applicants submit that Travis fails to cure the deficiencies of Giannesini.

Travis discloses an energy absorption system comprising conical bodies 12 separated by cables 20 (abstract), where the system progressively collapses in an axial direction through plastic deformation of compression members cooperating with each cable. The Travis system is intended be used in connection with highways, absorbing energy from impacts with vehicles, such as cars (col. 1, lines 9-16).

It would not have been obvious, however, and in fact would have been inappropriate, to have used the energy absorption system of Travis to have protected any risers of Giannesini

from ice impact, when the riser is in an extended, load transferring mode. First, Giannesini points towards protecting the riser by retracting it into a safe haven, not in the mode where the riser is in an extended, load transferring mode. Moreover, Travis teaches energy absorption by plastic deformation of its compression members. Applying such an energy absorption system to an extended riser in load transferring mode would be disastrous for an oil and gas riser, and could cause detrimental and fatal damage to the riser. For at least this reason, one skilled in the art would not have combined Giannesini and Travis in the manner suggested in the Office Action.

Independent claim 20 is directed to a method, and recites “further lifting a riser protection encompassing the riser upwards, the riser protection protecting at least an upper portion of the riser when in a retracted position.” Giannesini and Travis fail to suggest at least this feature of claim 20, and such a feature would not have been inherent in Giannesini and Travis. Giannesini does not suggest lifting its reservoir 3 upwards, and, as discussed above with respect to claim 1, Travis does not suggest modifying the Giannesini structure to include its energy absorption system in the manner suggested in the Office Action.

Independent claim 29 is directed to a method, and recites “lowering a separate, prefabricated unit comprising a reel, a riser reeled on to the reel, and a top configured to form a top of the protective structure, down into the protective structure and connecting an end of the reeled riser to a supply line for hydrocarbons, the connection being achieved by means of a swivel.” Giannesini and Travis fail to suggest at least this feature of claim 29, and such a feature would not have been inherent in Giannesini and Travis. Giannesini does not suggest any top for its reservoir 3 separate from a lower portion, and thus cannot suggest lowering a prefabricated unit comprising a top of its reservoir. Moreover, assuming arguendo that riser reels are known in the art, the Patent Office has not supplied a reference that suggests incorporating a riser reel with a top of a protective unit. Travis fails to cure the deficiencies of Giannesini.

The dependent claims are patentable for at least the same reasons as their respective independent claims, as well as for further patentable features recited therein. For example,

claim 2 recites “wherein the riser is protected at least along a portion of its length, the riser protection being suspended from the submerged turret buoy by means of a plurality of chains or wires.” Giannesini and Travis do not disclose or suggest any riser protection being suspended from a submerged turret buoy by means of a plurality of chains or wires. Claim 7 recites “wherein the riser may be completely retracted into the protective structure when idle, the riser being stored on a reel arranged inside the protective structure.” The Patent Office has not supplied any reference that discloses or suggests any riser being stored on a reel arranged inside a protective structure.

Applicants believe that the present application is now in condition for allowance. Favorable reconsideration of the application as amended is respectfully requested.

The Examiner is invited to contact the undersigned by telephone if it is felt that a telephone interview would advance the prosecution of the present application.

The Commissioner is hereby authorized to charge any additional fees which may be required regarding this application under 37 C.F.R. §§ 1.16-1.17, or credit any overpayment, to Deposit Account No. 19-0741. Should no proper payment be enclosed herewith, as by a check or credit card payment form being in the wrong amount, unsigned, post-dated, otherwise improper or informal or even entirely missing, the Commissioner is authorized to charge the unpaid amount to Deposit Account No. 19-0741. If any extensions of time are needed for timely acceptance of papers submitted herewith, Applicants hereby petition for such extension under 37 C.F.R. §1.136 and authorize payment of any such extensions fees to Deposit Account No. 19-0741.

Respectfully submitted,

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ABSTRACT

~~The invention relates to a~~ A loading system for transfer of hydrocarbons between an installation on the sea bed (16) and a floating vessel (10) in areas exposed to drifting ice. The system including ~~comprises~~ a submerged turret buoy (19), a flexible riser (18) extending from the sea bed installation (24) to the buoy (19) intended to be securely connected to a corresponding pipe on board the vessel (10), and a plurality of mooring lines (17) connected to the buoy (19) and extending outwards therefrom. The system further including a riser protection element ~~comprises: protective means~~ (20) for protecting the riser (18) from impacts when the riser (18) is in an extended, load transferring mode, and a protective structure (24) located in or on the sea bed (16) for protection of the riser (18) when in a retracted position in a non-operative mode; that the protective structure (24) containing riser reel means (28) for storing the riser (18) in a protected position when disconnected and retracted from the vessel (10). ~~The invention also relates to a~~ A method for mooring a vessel to a submerged turret buoy and a method for installing a riser protection element means.